Waste-To-Energy—Geographic Information System Tool

Steven J. Pratt
Ground Water Center Coordinator
U.S. EPA Region 6
(214) 665-2140
pratt.steven@epa.gov

Authors: Steven J. Pratt
U.S. EPA Region 6

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An extensive, mostly untapped source of renewable energy is available from the biomass and methane produced in concentrated animal feeding operations (CAFOs), solid waste landfills (SWLFs), publicly owned treatment works (POTWs), and other waste biomass generating industries. The U.S. Environmental Protection Agency's (U.S. EPA) Waste-to-Energy (WTE) program is designed to capitalize on these untapped energy sources. In Region 6 alone, there are over 5,000 total CAFOs, SWLFs and POTWs, with the potential to harvest more than 400 billion ft3/yr of biogas. One of the largest impediments to WTE efforts has been coordinating waste generators and WTE facility builders with the energy grid, transportation corridors, and other metrics. A computer tool is needed to examine potential facilities with critical operating and energy information, energy grid data, and transportation/land use parameters to help design optimum systems at ideal locations. Such a tool would enable municipalities, industry, and private and public sectors to explore the potential for building WTE facilities, help determine optimum locations, enable users to build a business case for WTE operations, and allow waste generators to develop profitable methods to reduce environmental impacts.

U.S. EPA Region 6 has initiated an innovative, voluntary, and cooperative project to develop such capabilities. We are developing a WTE-Geographic Information System (GIS) tool addressing CAFOs, POTWs, SWLFs, and other biomass-generating operations (e.g., farming activities, animal-rendering facilities, city/county reclamation programs) in the 16-county Dallas/Fort Worth area. The U.S. EPA's partners include the Texas State Energy Conservation Office, Texas Farm Bureau, Texas Department of Agriculture, Texas Commission on Environmental Quality, and North Central Texas Council of Governments. The software enables a user to identify single/clusters of facilities that could be prime candidates for supporting WTE projects. An Internet Web site will provide public outreach and authorized use of the tool and also contain links of technologies, waste generators, and WTE developers. The environmental benefits (e.g., percent reduced greenhouse gases, decreased ozone smog, reduction in water contaminant levels) will also be presented.

The tool will foster the development of WTE facilities, enhance development of related advanced technologies, and establish the environmental benefits of WTE activities. Environmental and economic successes upon local implementation of this tool will further benefit the rest of the country, as this project should be replicable in other areas. WTE projects will help provide energy security and address tightening waste discharge requirements and

associated waste minimization and resource conservation while fostering the creation and development of a new environmentally friendly industry.